

REMARKS

Applicants thank the Examiner for the thorough consideration given the present application. Claims 6, 7 and 9 are currently being prosecuted. Claims 3 and 8 have been withdrawn from consideration. Claim 5 is currently being cancelled and its limitations incorporated into claims 6, 7 and 9. The Examiner is respectfully requested to reconsider his rejections in view of the amendments and remarks as set forth below.

Rejection Under 35 U.S.C. § 112

Claims 5-7 and 9 stand rejected under 35 U.S.C. § 112, first paragraph as containing subject matter not described in the specification. This rejection is respectfully traversed.

First, by way of the present Amendment, claim 5 has been cancelled rendering that part of the rejection moot. The limitations of claim 5 have been added to independent claims 6, 7 and 9.

The Examiner continues to object to the use of the word "symmetric" even in describing the arrangement of the regions. The Examiner points out that the use in the claim is to mean "a series of repeating regions" rather than the standard definition of symmetric. Accordingly, Applicants have changed this wording to use the language suggested by the Examiner, namely, that the regions are serially repeated along a line perpendicular to the pipe axis direction. Applicants submit

that this language is described in the specification and shown in the figures. Accordingly, this rejection is believed to be overcome.

Rejection Under 35 U.S.C. § 103

Claims 5-7 and 9 stand rejected under 35 U.S.C. § 103 as being obvious over Yamamoto et al. (JP 11-000713) in view of Schuez et al. (U.S. Patent 5,775,411). This rejection is respectfully traversed.

First, Applicants note that claim 5 has been cancelled rendering this part of the rejection moot. Secondly, Applicants request clarification of the references being applied in this rejection. In the statement of the rejection, the Examiner refers to the Yamamoto et al. and Schuez et al. references and discusses these two references in the following two paragraphs. However, the following paragraph refers to the Ishikawa et al. reference. Likewise, in the final paragraph in the section, referring to claims 6 and 7, the Examiner refers to the Takashi et al. reference. However, in the paragraph in the following section, the Examiner indicates that the rejections based on Ishikawa et al. and Takashi et al. are being withdrawn. Applicants are assuming that the reference to Ishikawa et al. and Takashi et al. was a clerical error and that indeed the rejection is based on the Yamamoto et al. and Schuez et al. references only. The present response is based on this understanding. If this is in any manner incorrect, the Examiner is requested to specify which references are being included in the rejection.

The Examiner cited the Yamamoto et al. reference to show all of the claimed limitations except the secondary grooves. Applicants disagree with the assessment of the reference.

First, it is assumed that the Examiner's understanding of the reference is based on the English language abstract and the figures. If the Examiner has access to a full translation, he is requested to provide it to Applicants as well. Secondly, Applicants do not see that there is any disclosure of the relative sizes of the two rows of grooves. In particular, it is not seen that the reference shows that the two rows are different in width in the circumferential direction. In fact, the figures appear to indicate that the grooves are all of equal size.

The Examiner cited the Schuez et al. reference to show heat transfer pipe having grooves and projections with the projections having a plurality of secondary grooves 5 to improve heat exchange. Applicants also disagree with the Examiner's assessment of this reference. The projections do have indentations 5. However, contrary to the Examiner's statement, these are not grooves but rather mere depressions.

Claim 9 as presently amended describes a heat transfer pipe having a combination of elements including a pipe body, a first row of grooves, a second row of grooves, v-shaped pattern regions being serially repeated, the two rows having different widths and secondary grooves with fine grooves extending from one side surface to the other side surface. The secondary grooves are shown, for example, in Figure 8 of the present application and are formed on the sloped

surfaces of the projections. The secondary grooves are now specifically described in claim 9 in the language which was originally included in claim 5. Applicants submit that it would not be obvious to one of ordinary skill in the art to provide a heat transfer pipe having the combination of elements described in claim 9 in view of these two references. In particular, these two references do not specifically describe the difference in size of the two sets of rows and the use of fine grooves extending from one side surface of the projected portions to the other side surface. Accordingly, Applicants submit that claim 9 is allowable over this combination of references.

Claim 6 is an independent method claim for manufacturing a heat transfer pipe having a combination of steps, including marking two rows of grooves with a marking roll, the grooves forming v-shaped regions which are serially repeated, the two rows being different in width, marking secondary grooves on part of the projected portions and forming a cylindrical pipe using a roll forming device. Applicants submit that this claim is also allowable since the references do not teach the formation of secondary grooves as fine grooves extending from one side surface to the other surface of the projected portions and as not showing the difference in size of the two rows. Accordingly, claim 6 is likewise allowable.

Claim 7 is an independent apparatus claim for manufacturing a heat transfer pipe having a combination of elements including a first marking roll for marking two rows of grooves, the rows forming v-shaped patterns which are serially arranged, the two rows being different in width, a second marking roll for

marking secondary grooves extending from one side surface to the other side surface of a projected portion and a roll forming device for forming the material into a pipe. Applicants submit that this claim is likewise allowable since it does not teach the fine grooves extending from one side surface to the other and also does not teach the difference in the size of the two rows.

No Prosecution History Estoppel

Claims 6, 7 and 9 are hereby presented in independent form. No prosecution history estoppel would apply to the interpretation of the limitations set forth in claims 6, 7 and 9 in view of the fact that this subject matter has been continuously presented since the original filing date of the present application.

Conclusion

In view of the above remarks, it is believed that the claims clearly distinguish over the patents relied on by the Examiner either alone or in combination. In view of the above, reconsideration of the rejections and allowance of all the claims are respectfully requested.

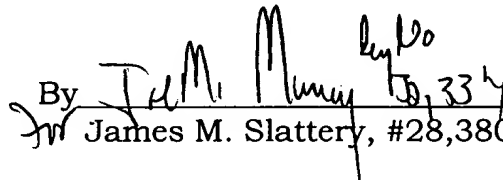
In the event that there are any outstanding matters remaining in this application, the Examiner is invited to contact Robert F. Gnuse at (703) 205-8000 in the Washington, D.C. area.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicants respectfully petition for a two (2) month extension of time for filing a reply in connection with the present application, and the required fee of \$410 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By  James M. Slattery, #28,380

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000

JMS/RFG/gh
0020-4783P